



भारत सरकार GOVERNMENT OF INDIA
खान मंत्रालय MINISTRY OF MINES
भारतीय खान ब्यूरो INDIAN BUREAU OF MINES
क्षेत्रीय खान नियंत्रक के कार्यालय
OFFICE OF THE REGIONAL CONTROLLER OF MINES



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No. RMP/A/47-ORI/BHU/2019-20

Date: 31.01.2020

सेवामे

Dr. Sarojini Pradhan, Mine Owner,
At/Po- Telenga Bazar,
Dist- Cuttack, Odisha-753009

विषय: Approval of Review of Mining Plan of Baitarani Iron Ore Mine along with Progressive Mine Closure Plan (PMCP), over an area of 65.397 ha in Keonjhar district of Odisha State, submitted by Dr. Sarojini Pradhan under Rule 17 of MCR, 2016.

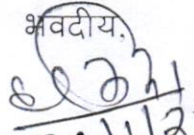
- संदर्भ: - i) Your letter No. DSP/PO/BTM-RMP/04/2020 dated 16.01.2020.
ii) This office letter of even no. dated 16.01.2020.
iii) This office letter of even no. dated 16.01.2020 addressed to Director of Mines, Government of Odisha copy endorsed to you.

महोदय,

This has reference to the letter cited above on the subject. The draft Review of Mining Plan along with Progressive Mine Closure Plan (PMCP) has been examined in this office based on site inspection carried out on 23.01.2020 by Shri Dayanand Upadhyay, Senior Assistant Controller of Mines. The deficiencies observed are enclosed herewith as Annexure I.

You are advised to carry out the necessary modifications in the draft Review of Mining Plan in the light of the contents vide Annexure 1 and submit **three (3) firm bound and two (2) soft copies of the document text in CD in a single MS Word file (the drawing/plates should be submitted in Auto CAD compatible format or JPG format in resolution of 100x100 pixels on same CD)** with financial assurance under Rule 27 of MCDR 2017 of the Review of Mining Plan within **15 (Fifteen)** days from the date of issue of this letter, for further necessary action. If the total page of annexures exceeds 50 (Fifty) then it should be submitted as separate volume. But reference of these annexures must appear in the Review of Mining Plan document. The plates are also to be submitted in separate volume.

The para-wise clarifications and the manner in which the deficiencies are attended should invariably be given while forwarding the final copies of the Review of Mining Plan. It may be noted that no extension of time in this regard will be entertained and the Review of Mining Plan will be considered for rejection if not submitted within above due date. It may also be noted that if the deficiencies are not attended completely, the submission would be liable for rejection without further correspondence.

भवदीय,

(हरकश भिना)
31/01/2020

क्षेत्रीय खान नियंत्रक

Copy for kind information and further necessary action to Shri S.C. Nayak, M/s MINESKETCH Consultants (P) Ltd, Flat No-205, Bhagwan Tower, Cuttack Road, Bhubaneswar-751006.

(हरकेश मीना)

क्षेत्रीय खान नियंत्रक

Scrutiny comment of Review of Mining Plan including PMCP in respect of Baitarani iron ore mine, Lease area 65.397 ha of Dr Sarojini Pradhan in Keonjhar district of Odisha State.

GENERAL:

- I. Diversified forest area to be furnished on cover page. E-mail, phone & fax no., complete address of lessee and qualified person, location of mines i.e village, tehsil, district etc should be also furnished on cover page. The submission of review of mining plan should be under rule 17(2) of MCR 2016.
- II. In introduction chapter brief history of the mines, surface right, present status of lease, supplementary lease deed if any in light of MMDR (Amendment) Act and 2015 should be furnished with documentary evidence. The document of declaration of legal heirs and authorized signatory submitted to Directorate of Mines should be furnished and same to be enclosed in annexure.
- III. Page-8, the co-ordinates of boundary pillar should be furnished in UTM also along with latitude and longitude. The latitude and longitude of boundary pillar furnished in the text are not matched with the DGPS plan.
- IV. The experience of qualified person should be clearly stated in supervisory capacity in the field of mining as per provision of rule 15(b) of Minerals (Other than Atomic and Hydro Carbons of Energy Minerals) Concession Rules, 2016.
- V. The annexure submitted are not legible and properly indexed. All the annexure to be properly indexed/ numbered/ paged and signed by qualified person. All the certificates should bear dated signature.

GEOLOGY:

- I. Page-16, the shape and size of ore body should be furnished in terms of average thickness and strike length of the ore body . Disposition of various litho units indicating structural features of lease area are not correctly furnished. The lithology shown in the borehole log should match with the lithology shown in geological plan and sections. The strike, dip, dip-direction should be shown in bold color in geological plan.
- II. Page-18, Para(e), the details of exploration carried since inception of mining operation to be given in tabulated form i.e. year, BH number, Location (Coordinate), nature of BH (Core/DTH), Depth (max-Min), mineralized/non-mineralized, Inclination etc. The relevant forms for intimation of borehole and borehole logs to be submitted as annexures.
- III. In page 19, Para (iii), the details of the sample analysis indicating type of sample should be given in tabulated format and nos. of sample analysis from NABL/Govt. lab out of total sample should be furnished alongwith annexure.
- IV. Page-19, Para-(iv), the expenditure incurred in various prospecting and exploration activities carried out by lessee has not been furnished.
- V. Page-20, Para-(i), the complete lease area should be proposed to cover under exploration under G1 level upto end of mineralization as per provision of rule 12(4) of MCDR2017. The year wise proposal for drilling to be shown in different contrasting color in both Geological Plan and Geological sections.
- VI. The proposal of exploration to be given in following format:

Sl.No	Year	BH No	Northing	Easting	Collar RL	Core/RC/DTH	Metage	Inclination	Forest/Non-Forest/ diverted Forest	Surface Right/ Non-Surface	Purpose of BH
1											
2											

At the end of the table cumulative number of proposed BH in forest area, non-forest area, diverted forest area, Surface right area and non -surface right area to be given.

- VII. It is furnished that total 42 nos. of bore holes have been drilled but the complete bore hole logs of drilled holes in specified format have not been submitted. The bore holes ID and their RL as furnished are not matched with plan and sections.
- VIII. Page-23, the lease area explored under different category of UNFC norms as shown in table is incorrect and should be recalculated as per the provision of Minerals (Evidence of Mineral Contents) Rules, 2015.

The justification for area considered for G1/G2/G3 etc. have not been furnished as per the provision of MEMC Rules'2015.

- IX. In the Geological plan, the boundary of UPL has not been marked correctly. In the Geological plan and sections, the UPL should be drawn properly considering the mineralization over the lease area. The UNFC boundary/code should be properly shown.
- X. Page-24, Para-k, the method of reserve estimation may be further elaborated and justified w.r.t recovery factor, Bulk density, Length of influence, nos. cross sections and bore holes considered in reserve and resource estimation. Necessary supporting documents to be furnished with respect to bulk density and recovery factor.
- XI. Page25-29, Para-l, the reserve and resources has not been furnished as per Minerals Evidence of Mineral Contents Rules 2015. In text reserve has been furnished under 121 category while in geological sections it is furnished 111 category. In some of the geological sections only BHJ has been shown and no any iron ore mineralization has depicted while in calculation of reserve/resources the same sections have also been considered alongwith other sections. Therefore all the plan and sections should be revised and revised estimation of reserve and resources are to be furnished with proper UNFC codes. The justification of UNFC should be furnished. Page 32-34, in calculation table of reserve and resources, the UNFC codes have not been furnished.
- XII. As per guideline of "IBM manual on appraisal of Mining Plan 2014" at least 10% of total samples to be analyzed in accordance to BIS and reports form NABL accredited/Government Laboratory.

MINING:

- I. Page-35, existing method of mining should be described in brief with date and reason of discontinuity of mining operation, present status of lease alongwith statutory clearances etc.
- II. Page-36, in proposed method of mining reason of 2 years lapsing period of proposal should also be described in brief.
- III. The existing ore stack and sub grade as furnished in table at page-36 are not matched with information submitted in annual return. All the existing stack and sub grade considering quantity and grade of ore should be in line with the annual return submitted to this office.
- IV. Proposed method of mining should be furnished in light of development plan i.e production capacity, nos. of pits proposed for production, site selection of waste/ mineral reject dump.
- V. Page 37-39, year wise development and production plan should be furnished in the following tabulated format.

Particular for the year...		
Bench Geometry	Height (in m)	
	Width (in m)	
	Individual bench slope angle	
Quarry Development	Location (Quarry Name)	
	Extent of Development (coordinates)	
	Sections considered for development	
	Number of benches	
	Benches considered for development with RL	
	Top RL	
	Bottom RL	
	Direction of advancement	
	Dimension of the quarry at the end of the year including existing benches	
	Area occupied (in sq.m)	
	Overall quarry slope angle	
Production of Ore (in MT)		

	Generation of Mineral rejects ore from quarry (in MT)	
	Production of ROM (Ore + Mineral Reject) in MT	
	Total Generation of waste (in cum)	

- VI. Page-41, in insitu tentative excavation, the recovery factor and cut-off grade should be furnished and it should be supported with documentary evidence.
- VII. The insitu tentative excavation calculation of proposed ROM production as furnished should be revised after correcting the development plan and section prevailed on mineralization as suggested in geology chapter.
- VIII. Page 49, briefly describe the layout of mine workings, pit road layout, the layout of faces and sites for disposal of overburden/waste along with ground preparation prior to disposal of waste, reject etc. The layout of faces to be shown in the following tabulated format.

Name of Pit	Description	1st Year	2nd year`	3rd year	4th Year	5th Year
	Face RL					
	Length of Face					
	Direction of advancement					
	Length of advancement					

- IX. In year wise development plan as described in text the proposed 100TPH wet beneficiation plant has not been described with date of commissioning, justification of site selection with its location, yearly feed quantity, grade final output with grade, generation of tailings etc
- X. In conceptual mining plan, cumulative waste generation, backfilling and protective measures should be furnished properly. Restoration of safety zone, dead dump and slope of the dump may describe.

STACKING OF MINERAL REJECT/SUB GRADE AND DISPOSAL OF WASTE:

- I. It should be ensured that the area proposed dumping should be proved non mineralized. Therefore exploration proposal priorities to prove the non-mineralized area before the dumping of waste/mineral reject.
- II. The proposed location of mineral reject should be furnished with terraces to minimize the land degradation. The details of mineral reject dumps and their analysis report should be submitted and discussed for their future use on the basis of their physical and chemical properties.
- III. The existing mineral reject dumps should be furnished below alongwith analysis report.

Name of Dump	Location (Grid)	Length(m)	Width(m)	Area Occupied	Total volume (cu.m)	Total quantity(T)	Grade

- IV. The extent/location of the proposed dumps to be given also mentioned whether within UPL or not. Also give the details of the existing dumps (top soil, waste dump, mineral reject dump) within the lease area in tabulated form comprising dump number, designed capacity, present quantity, remaining quantity, bottom RL and top RL.
- V. Details Existing and proposed retaining wall, garland drain, settling tank etc. to be given yearwise with their location. Location of sub-grade storage along with year to year development of the SG dumps to be given.
- VI. The proposal of dumping may be given in tabulate format as shown below. The year wise build up of dump should be described in details.

year	Waste to be dumped	Dump No	Location of Dumping (Grid)	Proposed area	Proposed dumping RL	No of terrace proposed	Individual terrace height	Slope of the terrace

PROCESSING OF ROM AND MINERAL REJECT:

- I. Page-69, Para-(b), material balance chart should be described with average size of feed, grade and recovery of processed ore with its size and grade.
- II. Details of products generated in the proposed beneficiation plant (100TPH) as furnished are not correctly specified in terms of quantity of feed, product from jigging, ball mill and tailing generation with specific size and grade and its quantity.
- III. Water requirement of beneficiation plant is not correctly furnished. It should be in tabular form with total requirement of water for mine and their consumption in different heads alongwith beneficiation plant (100TPH). Source of water, permission form concern department, recycle of water and water balance chart should be furnished.
- IV. The proposed tailing pond with their location, shape and size, capacity, safety measures taken and manner of tailing disposal should be described and study report from reputed institution should be enclosed in annexure.
- V. Page-71, flow chart of wet beneficiation plant should be furnished with year wise feed and its grade, final output, percentage recovery and generation of tailings etc.

PROGRESSIVE MINE CLOSURE PLAN:

- I. In proposed land use pattern the slime/tailing pond is proposed while in table furnished at page no. 89 and 105 for FA calculation the area of slime/tailing pond is not furnished. The total area including magazine as furnished in FA plan is not matched with text for FA calculation. Therefore amount of financial assurance should be re-calculated considering the proposed land degradation as per rule 27(1) of MCDR-2017 and submitted accordingly.
- II. Page-85-86, monitoring station of air, noise and water should be described in text and their locations furnished in tabular form.
- III. Page-96, Para-8.3, the information of Progressive reclamation plan of mined out land should furnished as below:

Year	Pits/ Quarries / dump	Area beginning of year(ha)	Additional degraded during year(ha)	Area to be reclaimed by backfilling(ha)	Area rehabilitated by plantation (ha)	Balance area at the end of year

- IV. Page-97, Para-8.3.3, The details of proposed tailing pond described with their location, shape and size, capacity, safety measures taken alongwith study report from reputed institution.
- V. Explain the disposal method of tailings or reject from the processing plant with quality and quantity, their toxic effect and arrangement of overflow water etc.
- VI. Para-8.3.6, the information on protective measures for reclamation and rehabilitation works year wise of dump management has not been furnished.
- VII. Updated air, water, noise, ground vibration and soil data with analysis from laboratory done at specified periodicity to be enclosed.
- VIII. Mitigation measures of impacts associated with mining i.e. mainly related to air, water, noise, vibration, land, etc. are not given properly. The same to be elaborated.
- IX. Year wise plantation covering number of saplings to be planted, location and area covered may be furnished.

PLATES:

- I. All the plan and sections should be signed with date by certified surveyor, qualified person, mines manager and mining geologist. The plans and sections submitted bear the certificate that --the plans and sections are prepared based on the lease map authenticated by the state government.
- II. All plans and sections shall show a scale of the plan at least twenty five centimeters long and suitably subdivided. All plans & sections prepared shall follow the sign conventions mentioned under MMR 1961.

- III. Wind direction may show through wind rose diagram in key plan and environmental plan. Approach road to the ML to be shown. Minimum two grid should be available in key plan.
- IV. Lease boundary line should be marked with red color followed by long and dot line.
- V. Existing and proposed bench RL to be mentioned in the all plans and sections. The UPL should be shown in red color in all relevant plans and sections. Magnetic Meridian and date of observation of should be given on all relevant plans.
- VI. A Joint boundary survey map with M/S Tata regarding re-defined the boundary between pillar no. 6 &8 is to be submitted alongwith DGPS plan.

Surface Plan: Updated surface considering the ore stack and mineral reject dump is to be submitted. Surface right, pillar co-ordinates and existing bore holes should be shown in surface plan. Few pillars may be correlated with some permanent ground features giving distance and direction. Different land use may be shown with colour codes. Virgin area is to be shown by contours and spot RL in surface plan. All the existing mineral reject dumps, mineral stacks, OB dumps should clearly notified with nos. and their RL.

Geological Plan & Section: UPL is not marked in geological plan prevailed on mineralization. Geological Plan and Geological section should be followed same color codes. The RL of the existing bore holes are not matched with bore hol logs. The Proposed bore holes with their depth should be marked in sections. Data related to strike, dip, dip-direction etc. shown on the geological plan in bold color. In the Geological Plan UNFC boundaries of G1, G2 .. area has not been furnished as per MEMC Rules 2015. Mineralization and litho units not furnished correctly in geological plan and section. In sections UNFC codes should be re-checked and corrected accordingly. Some of the indexes are missing, it should be re-checked.

Development plan & Section: Development section not in chronicle order. RL of benches in Sections are not matched with plan. Existing and proposed RL of benches/dumps should be mention clearly in development plan and section. Retaining wall and garland should be marked clearly yearwise with color codes. The grid should be marked in sections. UPL should be shown in red colour.

Environment plan: The Environment Plan as prepared should be satisfy the provision as laid down under rule 32(5) (b) of MCDR2017. The proposed and existing environment protective measures to be shown in environment plan. The drainage pattern of the lease area also to be shown on the plan. Contours should be shown in core zone.

Conceptual plan: Conceptual plan and section may be prepared considering mineralization as revealed from the borehole logs. Direction of run off from the area based on surface contours may be shown on the plan and the sections.

Reclamation Plan: The configuration of pits as shown in development plan is not matched with reclamation plan. Proposals of land restoration/reclamation/rehabilitation, afforestation, waste dump management etc should be depicted in Reclamation Plan with specific year and with different color codes.

FA Plan: In FA plan area proposed in slime/tailing pond is not furnished. The area considered in magazine is not furnished in text for FA calculation. Types of land degradation with area in hectare should be rechecked and shown through solid boundary color.